Learning is made easy by new sweet potato guides and manuals

RIU

Validated RNRRS Output.

New learning tools are providing a fast, easy way to access important knowledge on pre- and post-harvest management of sweet potato in East Africa. The materials include information on the farmer field school (FFS) approach, validated in Uganda, Kenya and Tanzania, as well as on the control of important sweet potato diseases. Posters, leaflets and training guides are available in English, Ateso, Swahili and Luganda. A manual with comprehensive technical information for farmers and facilitators has also been field-tested and published as individual farmer guidebooks in local languages. The materials, relying heavily on photos, are specially designed to help in training people who are illiterate or for whom the language of the materials is not their native tongue.

Project Ref: **CPP21:**
Topic: **1. Improving Farmers Livelihoods: Better Crops, Systems & Pest Management**
Lead Organisation: **Natural Resources Institute (NRI), UK**
Source: **Crop Protection Programme**

Document Contents:

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Geographical regions included:

Kenya, Tanzania, Uganda,

Target Audiences for this content:

Crop farmers,

Description

CPP21

A. Description of the research output(s)

1. Working title of output or cluster of outputs.
In addition, you are free to suggest a shorter more imaginative working title/acronym of 20 words or less.

Original title: Sweet potato management and promotion through FFS

Suggested alternative: Improved learning on sweet potato management through farmer group activities

2. Name of relevant RNRRS Programme(s) commissioning supporting research and also indicate other funding sources, if applicable.

Crop Protection Programme

3. Provide relevant R numbers (and/or programme development/dissemination reference numbers covering supporting research) along with the institutional partners (with individual contact persons (if appropriate)) involved in the project activities. As with the question above, this is primarily to allow for the legacy of the RNRRS to be acknowledged during the RIUP activities.

Main projects
R8458 (2005 – 2006) Expansion of sustainable sweetpotato production and post-harvest management through FFS in East Africa and sharing of the lessons learnt during the pilot schools
R8457 (2005 - 2006) Extending the control of sweet potato virus disease control
R8243 (2002 – 2005) Working with farmers to control sweet potato virus disease
R8167 (2002 - 2005) Promotion of sustainable sweetpotato production and post-harvest management through farmer field schools in East Africa

Closely-linked projects
R8041 (2001 – 2004) Tropical Whitefly IPM Project
R6617 (1994 - 7 extended to 1998) Whitefly borne viruses of sweet potato and cassava
R7492 (1999 - 2002) Control of sweet potato viruses
R6769 (1997 – 1999) Investigating the potential of cultivar differences in susceptibility to sweet potato weevil as a means of control
ODA Holdback project R5878 (1994-7)
B0111 - Farmer Participatory Research on Integrated Crop Management for Sweetpotato in North-Eastern Uganda

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4. Describe the RNRRS output or cluster of outputs being proposed and when was it produced? ***(max. 400 words)****. This requires a clear and concise description of the output(s) and the problem the output(s) aimed to address. Please incorporate and highlight (in bold) key words that would/could be used to select your output when held in a database.*

The outputs comprise knowledge-based means of improving the pre- and post-harvest **management** of **sweet potato** in **East Africa** and learning tools including the **experiential farmer field school** (**FFS**) approach, validated in **Uganda**, **Kenya** and **Tanzania**. For the control of **sweet potato virus disease** (**SPVD**) and **Alternaria**, knowledge of the causes of the diseases, how they are spread and controlled is provided: **resistant cultivars** are identified along with **control strategies** based on **phytosanitation**. These control measures have been validated by farmer research groups in Uganda and **posters**, **leaflets** and **training guides** for disseminating these control strategies developed alongside these farmer research group activities are all available in **English** and some in **Ateso**, **Swahili** and/or **Luganda**. Comprehensive information on the production and postharvest processing and marketing of sweet potato in East Africa, drawing on all available sources of knowledge, using authors with a wide range of expertises and based on learning needs identified by farmers in farmer field schools in Eastern Uganda, Western Kenya and Western Tanzania has been collated in the '**Manual** for **Sweetpotato** Integrated Production and Pest Management Farmer Field Schools in **sub-**

Saharan Africa'. This manual itself was developed and field tested with the farmer field schools and provides comprehensive technical information for farmers and facilitators along with advice for facilitators on the FFS approach and experiential learning lessons and tools. It was published in 2005 as a single book; separate chapters dealing with specific areas have been amended, field tested and published subsequently as individual farmer **guidebook**s in local languages.

5. What is the type of output(s) being described here?
Please tick one or more of the following options.

Product	***Technology***	***Service***	***Process or Methodology***	***Policy***	***Other Please specify***
X	*X*		*X*		

6. What is the main commodity (ies) upon which the output(s) focussed? Could this output be applied to other commodities, if so, please comment

Main commodity: **Sweet potato**

There are lessons learnt that could be applied to farmer field schools and farmer research groups working on the whole range of crops grown by smallholder resource-poor farmers but the crop-based technical information provided is specific to sweet potato

7. What production system(s) does/could the output(s) focus upon?
Please tick one or more of the following options. Leave blank if not applicable

Semi-Arid	***High potential***	***Hillsides***	***Forest-Agriculture***	***Peri-urban***	***Land water***	***Tropical moist forest***	***Cross-cutting***
X	*X*	*X*	*X*	*X*			*X*

8. What farming system(s) does the output(s) focus upon?
Please tick one or more of the following options (see Annex B for definitions).
Leave blank if not applicable

Smallholder rainfed humid	***Irrigated***	***Wetland rice based***	***Smallholder rainfed highland***	***Smallholder rainfed dry/cold***	***Dualistic***	***Coastal artisanal fishing***
X				*X*		

*9. How could value be added to the output or additional constraints faced by poor people addressed by clustering this output with research outputs from other sources (RNRRS and non RNRRS)? (**max. 300 words**).*

Please specify what other outputs your output(s) could be clustered. At this point you should make reference to the circulated list of RNRRS outputs for which proformas are currently being prepared.

Value could be added to our output by clustering it with:

1. **Similar knowledge-based outputs but on production of other crops the farmers grow**. A programme based just on sweet potato is likely to have periods when there are few sweet potato activities. Farmers attending farmer field schools or similar experiential training programmes are also likely to consider a programme based just on sweet potato to be too limited because they grow other crops that are also important to them such as cassava, maize and perhaps a cash crop such as coffee. For cassava, similar knowledge-based outputs were generated by R8227, R8404, R8303 and R8456; for yams, this could include R7503 and R8416; for coffee, R8203 and R8423, for beans, R8415, for groundnuts, R7445 and R6811, for cotton, R8403 and R8197, for maize, R8220 and R8422; also IPM generally through R8417 and R8341.
2. **Other postharvest outputs for sweet potato**, specifically R6769, R7520, R6507, R7498, R8273, some outputs of which are already included in the Manual, and on more general information such as marketing and credit schemes (e.g., R8114, R8205).
3. Outputs from projects R8457 and R8243 which target the **selection of high-yielding, disease-resistant cultivars** identified by smallholder farmers in East Africa as appropriate for their needs. Use of appropriate varieties is an important part of disease control in sweet potato for resource-poor farmers.
4. **Large-scale projects in Africa** either which focus on sweet potato such as the VITAA project or which have a large agricultural training component, such as many FAO projects.

Validation

B. Validation of the research output(s)

*10**. How** were the output(s) validated and **who** validated them?*

*Please provide brief description of method(s) used and consider application, replication, adaptation and/or adoption in the context of any partner organisation and user groups involved. In addressing the "who" component detail which group(s) did the validation e.g. end users, intermediary organisation, government department, aid organisation, private company etc... This section should also be used to detail, if applicable, to which social group, gender, income category the validation was applied and any increases in productivity observed during validation **(max. 500 words)**.*

Information on control of sweet potato virus disease and Alternaria was validated in three main ways:

1. **Farmer groups** in Uganda and Tanzania testing different cultivars and different control strategies on-farm by, each group generally testing one or a few replica plots, using the farmers' own cropping practice except where treatments dictated otherwise and over at least 2 cropping cycles.

2. **Scientists on-station** in fully-replicated randomized trials again conducted over at least 2 cropping cycles.

3. **Scientific peers** by acceptance of the research findings in an international peer reviewed journal

[Byamukama E., Adipala E., Gibson R.W. and Aritua V. 2002. Reaction of sweet potato clones to virus disease and their yield performance in Uganda. African Crop Science Journal, Vol. 10: 317 – 325].

The appropriateness of training materials was assessed in the following ways:

- For posters and leaflets, by an iterative process with farmer groups, repeatedly checking, improving and rechecking that the training materials were clear, easy to understand and delivered the correct message(s).
- The first draft of the technical guidelines section of the manual was developed and revised by diverse stakeholders as part of an initial planning workshop [Busia, May 2002].
- An initial sweet potato integrated pest and production management (IPPM) training of trainers (ToT) course was developed and run for an initial seven master trainers followed by the farmer field school (FFS) curriculum development workshop.
- Farmers in seven farmer field schools in Kenya, Uganda and Tanzania contributed to deciding the contents of the Manual. The Manual was further revised and validated during the operation of these training schools and during subsequent project workshops.

All farmer groups comprised primarily resource-poor smallholders growing sweet potato for home consumption, generally plus only minor sales of their sweet potato crop. A few had slightly larger businesses selling to boarding schools or an urban market. The groups had been organised aiming to achieve gender balance. Activities in central Uganda were with farmer groups developed by the Buganda Cultural and Development Foundation (BUCADEF); activities in north-western Tanzania were with groups developed by Partage Tz, an NGO working with HIV AIDS-affected families and with ones developed by FAO; activities in north-east and eastern Uganda were with groups developed by the project itself, previous FAO activities, SOCADIDO and NAADS and western Kenya were with previous women and youth groups, and groups developed by the project, extension and FAO-developed farmer field schools.

*11. **Where and when** have the output(s) been validated?*

*Please indicate the places(s) and country(ies), any particular social group targeted and also indicate in which production system and farming system, using the options provided in questions 7 and 8 respectively, above **(max 300 words)**.*

Farmer group activities were done mainly in central, north-eastern and eastern Uganda, in western Kenya and in north-western Tanzania [Kagera Region], areas where sweet potato is an important staple food and is also be traded. Most farmer groups targeted resource-poor smallholders [moderately poor] growing sweet potato mainly for home consumption but also for sales of the crop, generally small-scale for minor family needs but a few sold to urban markets or boarding schools. They had been organised aiming to achieve gender balance; the very poor may have been excluded by lack of free time etc. Activities in central Uganda were with farmer groups developed by the Buganda Cultural and Development Foundation (BUCADEF); activities in north-western Tanzania were with groups developed by Partage Tz, an NGO working with rural HIV AIDS-affected families [Extreme dependent poor people and Children of the extreme poor (vulnerable and dependent groups)] and with ones developed by FAO with smallholders; activities in eastern Uganda and western Kenya were with FAO-developed farmer field schools.

Activities were done in mid-altitude [1,000 – 1,300 m.a.s.l.], rain-fed farming systems [smallholder rainfed, both humid and semi-arid systems] in agro-ecological environments in which forest or trees plus tall grass would be the natural climax vegetation [High potential + Forest agriculture].

Validation was done recently, mostly between 2002 – 2005.

Current Situation

C. Current situation

12. ***How and by whom*** *are the outputs currently being used? Please give a brief description* ***(max. 250 words****).*

The guide, leaflets and posters are being used by extensionists and farmer group facilitators particularly to train people who may be illiterate or only partially-literate people and people for whom the written language is not their native tongue. All have many photographs with short written messages enabling easy some understanding. The farmer field school approach uses an experiential learning system which is ideal for adult learning and for people unused to formal education systems. The use of a group facilitator and mainly collaborative group activities overcomes any remaining difficulties associated either with technical language or use of an international language in the manual [which is intended for the use by facilitators (including extension, NGO staff and farmer graduates of FFS).

To this end, thousands of leaflets and hundreds of posters on the control of sweet potato virus disease have been distributed to extensionists and mainly smallholder farmers mainly in central Uganda and north-western Tanzania as part of farmer training provided by national programme scientists in both countries, by BUCADEF farmer group trainers in central Uganda [moderate poor] and by extensionists of various NGOs funded through Norwegian Peoples' Aid (NPA) in north-western Tanzania [mainly Ngara and Biharimulo districts] assisting smallholder farmers [Extreme vulnerable poor] in areas adversely affected by refugees mainly coming from Rwanda and Burundi.

The farmer field school manual and other leaflets and posters are being used by CIP and PRAPACE at national and regional meetings to provide training material to farmers, extensionists, researchers, donors and policymakers. More than 2000 copies have been distributed throughout sub-Saharan Africa in this way.

The VITAA website is being used to download the manual placed on it at:

http://www.cipotato.org/vitaa/manual/02_TM%20Inner%20cover%20&%20acknowl_corrected.pdf#search=%22Manual%20for%20Sweetpotato%20Integrated%20Production%20and%20Pest%20Management%20Farmer%20Field%20Schools%20in%20sub-Saharan%20Africa%22

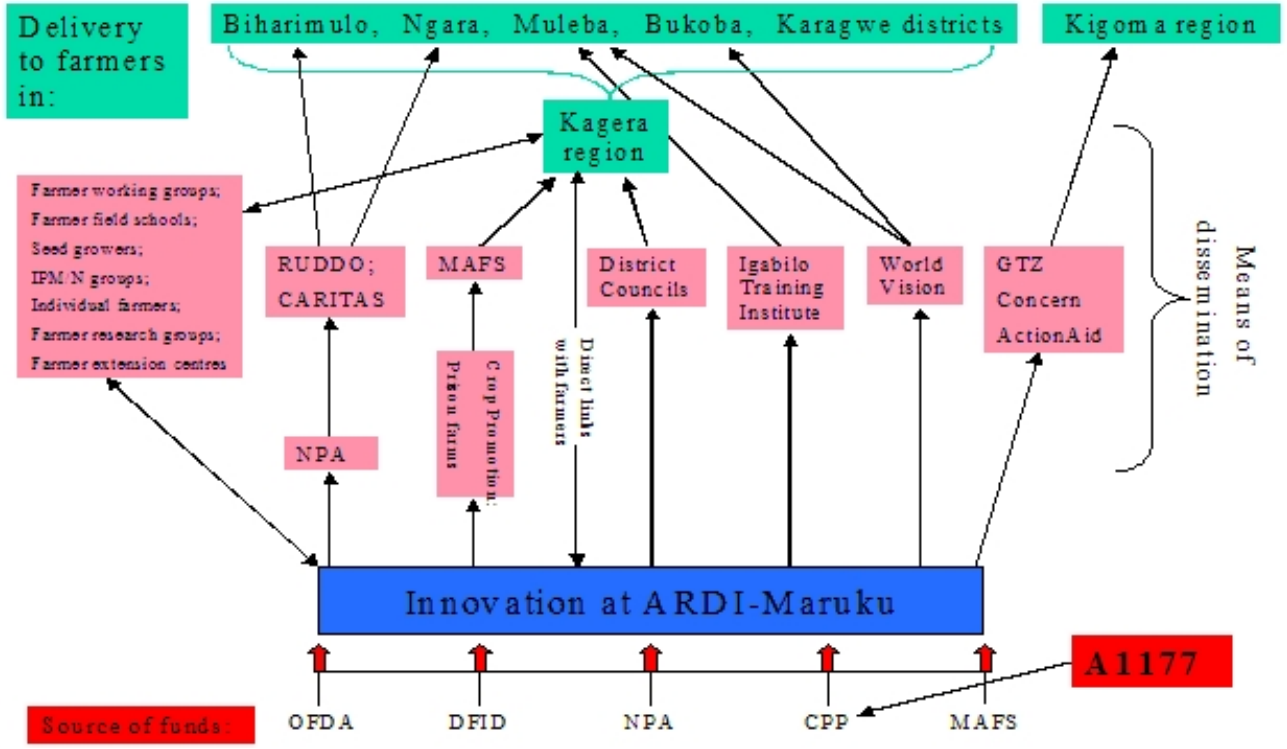
The farmer field school manual is being used to train more than 1000 farmers in 37 SP IPPM FFS in Soroti, Busia and Kumi districts in East and North Eastern Uganda, in Busia, Bungoma, Kakamega, Butere Mumias and Kisumu district in Western Kenya, and in Bukoba district in NW Tanzania.

*13. **Where** are the outputs currently being used? As with Question 11 please indicate place(s) and countries where the outputs are being used **(max. 250 words).***

1. In Uganda, particularly in Central and Western region where the Buganda Cultural and Development Foundation (BUCADEF) extension officers have been trained using project approaches and tools by project staff and staff of Namulonge Agricultural and Animal Production Research Institute using project funding and in eastern Uganda where farmers have been trained using project approaches and tools through project farmer field schools.

2. In Western Kenya, where farmers have been trained using project approaches and tools through project farmer field schools.

3. In North-western Tanzania (Kagera and Kigoma regions), where farmers have been trained using project approaches and tools through project farmer field schools and where project staff have transferred project approaches and tools to extension staff of NGOs and using funding provided by Norwegian People's Aid – See below.
4.



5. Throughout sub-Saharan Africa through distribution of learning tools through CIP and PRAPACE national and regional meetings and through the distribution of the Manual on the CIP VITAA website.

Environmental Impact

H. Environmental impact

24. What are the direct and indirect environmental benefits related to the output(s) and their outcome(s)? ***(max 300 words)***

This could include direct benefits from the application of the technology or policy action with local governments or multinational agencies to create environmentally sound policies or programmes. Any supporting and appropriate evidence can be provided in the form of an annex.

The technologies developed are largely neutral in their effects on the environment. No pesticides or genetically manipulated crops are involved in the outputs. No major changes in cropping practice are involved. Land cover may be increased by the more rapid growth of healthier crops, reducing erosion. Adoption of the outputs may lead to increased land area cropped by sweet potato but this may indirectly be beneficial because sweet potato has a greater food output/unit land than most crops so this will lead to less land having to be cropped, allowing longer fallows. Furthermore, increased production of sweet potato achieved by improved crop and postharvest management practices may mean less land has to be cultivated.

25. Are there any adverse environmental impacts related to the output(s) and their outcome(s)? ***(max 100 words)***

No. None have been identified to date and no adverse environment impacts are to be expected

26. Do the outputs increase the capacity of poor people to cope with the effects of climate change, reduce the risks of natural disasters and increase their resilience? ***(max 200 words)***

YES. Poor people turn to sweet potato when climate change or natural disasters occur because it is has the capacity to yield large amounts of food from a small amount of land and within a short time (3 mths; faster than most other staple food crops). Sweet potato is also very resilient in the face of erratic rainfall because of its indeterminate growth, unlike, e.g., maize. Thus, NGOs have begun to provide sweet potato planting material for refugees. Under such circumstances, improved crop and postharvest management practices can provide the difference between a successful harvest and crop failure.
